Preface

Kenneth S. Knox, MD George A. Sarosi, MD, MACP
Guest Editors

Have you traveled anywhere recently? What medication did your rheumatologist start 3 months ago? What was your last CD4 count? When did you receive your last dose of chemotherapy? How old is that central line? The answers to these questions often point to a fungal pathogen as the cause of a new cough, unexplained fever, or persistent pulmonary infiltrates. A good history coupled with investigation into the immune status of the host is valuable to securing a diagnosis. Pathogens such as the endemic fungi and *Pneumocystis* often cause disease in patients with deficiencies in the T-cell–mediated arm of cellular immunity. In contrast, infections with *Aspergillus* spp and molds occur in individuals with quantitative or qualitative neutrophil defects. Because the diagnosis of fungal diseases can be elusive, study of these pathogens remains robust.

The study of fungal pathogenesis, diagnostics, and treatment has advanced rapidly over the past decade and is the topic of numerous studies and reviews. In this issue of *Clinics in Chest Medicine*, leading scientists and clinicians provide updates on individual pathogens as well as the field of fungal diagnostics and therapeutics.

Perhaps the most important advance in dealing with fungal diseases is the availability of new antifungal agents. Drs.Thompson, Cadena, and Patterson provide a comprehensive overview of currently available antifungal agents. In their review, important points regarding efficacy, adverse events, pharmacokinetics, and bioavailability are discussed.

The endemic fungi (*Histoplasma, Blastomyces,* and *Coccidioides*) and *Cryptococcus* can cause disease in immunocompetent individuals in whom uneventful recovery is the rule. However, in immunocompromised patients, particularly those with AIDS or those receiving anti-TNF agents, these infections are frequently severe and often have extrapulmonary dissemination requiring aggressive treatment.

Outside their usual endemic area, infections caused by these organisms may be difficult to diagnose and delays in therapy can be devastating. Dr. Kauffman reviews the classic presentation of histoplasmosis. Drs. McKinnell and Pappas provide new insight into the ecology and diagnosis of blastomycosis. Dr. Ampel provides a synopsis of the history and immunology of coccidioidomycosis and highlights the latest diagnostic and treatment strategies. Dr. Mody's group reviews the classification of cryptococcal disease and provides insight into the human immunological response. Drs. Krajicek, Thomas, and Limper discuss the genomics of *Pneumocystis* and recent advances in diagnostics.

The aforementioned pathogens often cause disease in patients with defects in T-cell–mediated immunity. A more recent clinical dilemma is the increased risk of fungal infections in patients receiving anticytokine therapy. Dr. Hage and colleagues provide new information regarding the impact of anti-TNF therapy and other ''biologics'' on fungal infection risk.

Candida blood stream invasion is common and Dr. Darouiche discusses the difficulties with diagnosis and treatment of *Candida* infections in the intensive care unit. Perhaps the most devastating fungal infections occur as a result of the high level

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of immunosuppression needed posttransplantation. Drs. Nucci and Anaissie review the difficult problem of *Aspergillus* infection in the transplant recipient. Dr. Husain discusses the unique complications that often occur in lung transplant patients. Dr. Wood and colleagues provide an overview for management of allergic reactions, mycetomas, and other less invasive forms of fungal infections. Drs. Naggie and Perfect demystify mold infections.

A final area in which new information is available is the area of fungal diagnostics. Dr. Wheat discusses the utility of antigen and serologic testing for specific fungal diseases. However, not all pathogens are easily diagnosed by blood or serum testing. Dr. Meinke and I are interested in using bronchoalveolar lavage to improve the diagnosis of fungal infections. Perhaps newer antigen detection assays as described by Dr. Wheat, or advanced molecular techniques, as described by Drs. Binnicker and Wengenack, can be applied to blood, BAL, or even tissue biopsy to improve the future care of patients with fungal infections.

Kenneth S. Knox, MD
University of Arizona College of Medicine
Southern Arizona VA Health Care System
(SAVAHCS)
3601 S. 6th Avenue (1-11C)
Tucson, AZ 85723

George A. Sarosi, MD, MACP
University of Minnesota School of Medicine
Minneapolis VA Medical Center
Minneapolis, MN

E-mail addresses:
Kenneth.Knox2@va.gov (K.S. Knox)
georgesarosi@comcast.net (G.A. Sarosi)